DOCUMENT RESUME

ED 323 865 HE 023 867

AUTHOR Morrison, James L.
TITLE Developing an Environmental Scanning System.
PUB DATE Jul 90
NOTE 10p.; Paper presented at a Meeting of the Society for College and University Planning (Atlanta, GA, July 15-18, 1990).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *College Planning; Data Collection; Decision Making; *Educational Planning; Higher Education; Information Management; *Information Systems; Information Utilization; Long Range Planning; Policy Formation; Research Tools; Staff Meetings; *Systems Development; Trend Analysis
IDENTIFIERS *Environmental Scanning

ABSTRACT

A step-by-step approach is provided for developing an environmental scanning system for colleges and universities to assist them in planning for the future. The objectives of such a system are to detect social, scientific, economic, technical, and political interactions important to the organization; define potential threats and opportunities from these developments; promote a future orientation in management and staff; and alert management and staff to trends which are converging, diverging, speeding up, slowing down, or interacting. Each developmental step required in creating an ongoing environmental scanning program is reviewed; these are: (1) the development of a program structure, i.e., the literature review needed, personnel to do the scanning, and types of available information resources; (2) developing a comprehensive taxonomy, including an electronic filing system; (3) identifying and assigning information resources; (4) securing scanners; and (5) training scanners and abstractors. It is noted that incorporating a systematic environmental scanning system process should enable decision makers to anticipate what is happening in the state, region, nation, and world, and, correspondingly, to plan more effectively. Contains 18 references. (GLR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED323865

DEVELOPING AN ENVIRONMENTAL SCANNING SYSTEM

James L. Morrison
Professor of Education
The University of North Carolina at Chapel Hill
CB 3500 Peabody Hall
Chapel Hill, NC 27599-3500
919 966-1354

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

James L. Morrison

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper Presented to the Society for College and University Planning Special Interest Group on Environmental Scanning

Atlanta, Georgia
July 15-18 1990

HE 023 867

DEVELOPING AN ENVIRONMENTAL SCANNING SYSTEM

In the past two decades the environment of higher education has become increasingly turbulent. There have been major shifts in the demographic composition of student clienteles, a radical restructuring of the tax code, growing criticism of the quality of the undergraduate curriculum, and increasing use of electronic technologies resulting in major changes in the delivery systems of colleges and universities.

Given this rapidly changing environment, the lead time once enjoyed by administrators to analyze and respond to changes in their institution's external environment has decreased. Moreover, traditional long-range planning models, with their inward focus and reliance on historical data, are weak in anticipating external environmental changes and assessing their impact on the organization (Cope, 1987). The underlying assumption of such models is that any future change will be a continuation of the rate and direction of present trends among a limited number of social, technological, economic, and political variables, the interrelationship of which will remain fixed over time. They thus reflect an assumption that the future for the institution will reflect the past and present or, in essence, the future will be "surprise-free." We know, however, that this is not true, and the further we go out into the future, the less it will be true.

What is needed, as Jonsen (1986) argues, is a method that enables administrators to integrate understanding about various sectors of the external environment, especially as they might be interrelated; a capacity to translate this understanding into the institution's planning activity; and a sufficient priority given to the activity to ensure its translation into decisions and implementation.

A technique has been developed in the corporate sector to systematically gather and evaluate information from the external environment—the environmental scanning process (Thomas, 1980). Brown and Weiner (1985) define environmental scanning as "a kind of radar to scan the world systematically and signal the new, the unexpected, the major and the minor" (p. ix). Aguilar (1967) has defined scanning as the *systematic* collection of external information in order to (1) lessen the randomness of information flowing into the organization and (2) provide early warnings for managers of changing external conditions. More specifically, Coates (1985) has identified the objectives of an environmental scanning system as:

- detecting scientific, technical, economic, social, and political interactions and other elements important to the organization

- defining the potential threats, opportunities, or potential changes for the organization implied by those events

- promoting a future orientation in management and staff

- alerting management and staff to trends which are converging, diverging, speeding up, slowing down, or interacting (pp. 2-13, 14)

Recent literature in educational planning has encouraged college and university administrators to use this process as part of their strategic planning model (Cope, 1981; Keller, 1983; Morrison, Renfro, and Boucher, 1984; Callan, 1986; and Morrison, 1987). Indeed, a number of colleges and universities have begun to develop methods of formally incorporating environmental scanning information in planning for the future. Sometimes, as is the case at Cantonsville, Maryland, Community College or Georgia Southern, this takes the form of one or two individuals in the planning or institutional research office doing a survey of the available literature (Morrison, 1986). Often this review is comprehensive and focuses on obtaining important historical data as well as forecasts in the social, technological, economic, and political sectors of the external environment. Periodically, the scan is updated. Many times the scan is restricted to one or two sectors of the environment. Jonsen (1986), for ex-

ample, cites the scan of the California Postsecondary Education Commission as focusing on demographic and economic data. Other times the scan is confined to selecting key environmental issues, trends, and domains for monitoring. At the University of Minnesota, for example, the Experimental Team on Environmental Assessment identified between 20 and 30 issues to track (Hearn and Heydinger, 1985). Unfortunately, there are few reports in the literature describing these systems, irrespective of the form they are taking. A search of the ERIC literature base found little in the way of illustrating how an educational organization has actually developed, implemented and used the process to provide information for the strategic direction of the organization.

The environmental scanning process is designed to facilitate a relatively quick analysis of the external environment and to enable the organization to clarify its future, define its options and "get out in front" of anticipated changes in the environment. However, for the organization to develop the capacity to deal proactively with its environment, the process must be institutionalized. In other words, an on-going environmental scanning system must be created to supplement and continuously update the set of critical trends and events developed in the initial planning process.

Morrison (1987) has described how to develop an on-going environmental scanning program and the initial steps an organization may take in developing such a program. These steps include developing a program structure and a comprehensive taxonomy with an electronic filing system, identifying and assigning information resources, securing scanners, and training scanners and abstractors.

GETTING STARTED

An environmental scanning notebook consists of a literature review of readily available information resources . However, the extent of the review is dependent upon the amount of time that the facilitator has available. An on-going environmental scanning program overcomes this dependency by having a number of people regularly review information sources—the more scanners, the greater the number of information resources that can be used. Therefore, one of the first steps in institutionalizing an environmental scanning system is to recruit volunteers to perform scanning.

One approach that has been successfully used to recruit scanners consists of offering a half-day planning workshop focusing on strategic planning models. This would include a out-side-in planning model that focuses on the use of environmental scanning information in planning activities for the organization and for its constituent parts, including program planning within individual departments or functional areas. A major part of the workshop would be an exercise in the identification and evaluation of critical trends and emerging issues. This exercise would enable participants to bring their individual knowledge of the external environment to a discussion, which could result in expanding the event and trend set developed during the initial phases of the planning process. Moreover, this workshop should generate enthusiasm for establishing a system for systematically seeking indications of change in the external environment.

DEVELOPING PROGRAM STRUCTURE

The structure of the system does not have to be elaborate. The planning team facilitator could chair the scanning committee, consisting of the planning team members and other interested individuals. In addition, the facilitator is responsible for assigning information sources to each scanner and is responsible for collecting and filing scanning abstracts. Periodically, perhaps bimonthly or quarterly, the planning team meets as a scanning evaluation committee to sort, sift, and evaluate the significance of the abstracts. It is reasonable to anticipate from 100-200 abstracts per quarter, depending to some extent on the number of individuals employed in scanning. These meetings will require the team to summarize by sector (i.e., social, technological, economic, and political) all abstracts produced during the quarter. This activity will take one work week by team members. An alternative approach would be for the facilitator to categorize the abstracts by sector and assign each team member the responsibility for reviewing all abstracts in that sector. Regard-

less of which approach is used, a written summary (in essence a preliminary analysis) by sector should be prepared and distributed prior to the staff meting. Discussion and analyses at this meeting will take four hours. Each meeting concludes with additions to the trend or event set and perhaps with updated information on trends and events already in the set. The facilitator has the responsibility of documenting the discussion and preparing the report. (See Simpson, McGinty, & Morrison, 1987 for a discussion of how the Georgia Center for Continuing Education structured its environmental scanning process.)

DEVELOPING THE SCANNING TAXONOMY

The trends and events identified in the initial planning activity and in the workshop for volunteer scanners may be used to develop the beginnings of a scanning taxonomy, so that every possible item resulting from scanning has a logical place to be classified. The taxonomy depicted in Figure 1 has two objectives: (a) to provide a comprehensive set of categories within which related materials can be filed, and (b) to provide a numbering method for every piece of information collected, as well as for the specific trends and events identified (or created) within these categories. Note that there are six categories in the taxonomy—demographic, social, technological, economic, political, and environmental. Their relationship to the organization is classified in both external (international, national, regional) and internal (i.e., education) categories, and each resulting "cell" is numbered. For example, an important discussion of regional migration would be assigned to Category 1.3, while a change in the regulations defining eligibility for federally funded student financial aid would be assigned to Category 5.2.

This numbering system may then be used in the next Delphi conducted by the planning team. Each question in the Delphi can be numbered according to its classification in the taxonomy, facilitating quick retrieval of the source document from which the trend or event was drawn and enabling a quick update of the historical information the team may wish to add to the Delphi question in succeeding years. Boucher and Morrison (1989) recommend refining this system by adding three digits to the category numbers. The third digit would be assigned using the following code:

1.=a trend, including historical or forecasted data

2 =an event that the author of the source document had identified as having some chance of occurring in the future

3 =a policy proposal or suggestion offered in the source document as a means of improving some condition, current or prospective

4 =a miscellaneous piece of information, not one of the preceding types, but nevertheless of potential value in the Delphi, either now or next year

The last two digits would be assigned in serial order (00 - 99) to each item entered into the taxonomy. Thus, an item coded 3.4.2.02 could be identified as the second event that concerned a specific potential development in educational technology.

ORGANIZING THE FILES ELECTRONICALLY

Utilizing computers, electronic files facilitate review, referral and updating. Moreover, through using an electronic filing system, it is easier to develop consortium relationships with similar organizations or with organizations in the same geographic area. There are a number of electronic bibliographic data base software programs available commercially. *Pro-Cite*, a software program developed by Personal Bibliographic Software, has standard workforms for each data entry into variable-length fields and records, authority lists to standardize names, bibliographic titles, or key words, and a search capability using Boolean logic for quick retrieval. One reason for using this program is that it is available in both Macintosh and PC/MS DOS formats, thereby allowing data exchange via modem, over a network, or through a mainframe. In addition, Personal Bibliographic Software has developed two complementary programs, *Pro-Search* and *Biblio-links*, thereby allowing retrieval of information from a major data base like Dialogue, which can be down-

CATEGORY OF DEVELOPMENT	BEARING ON			
	EXTERNAL			INTERNAL
	International	National	Regional	
1. Demographic	1.1	1.2	1.3	1.4
2. Social	2.1	2.2	2.3	2.4
3. Technological	3.1	3.2	3.3	3.4
4. Economic	4.1	4.2	4.3	4.4
5. Political, Legal and Regulatory	5.1	5.2	5.3	5.4
6. Environmental	6.1	6.2	6.3	6.4

FIGURE 1. ENVIRONMENTAL SCANNING TAXONOMY

loaded to disk, and transferred into an appropriate *Pro-Cite* workform (journal, book, newspaper article, etc.). It is also possible to use a standard data-base program. For example, the scanning program at the University of Minnesota uses dBase II.

IDENTIFYING LITERATURE SOURCES AND DATA BASES

The important criterion for literature selection is diversity. Information should be obtained from newspapers, magazines, dissertations, journals, TV and radio programs and conferences.

A comprehensive list should include the following:

(a) Newspapers—*The New York Times, The Wall Street Journal, The Miami Herald, The Chicago Tribune, The Los Angeles Times, The Christian Science Monitor and USA Today*

(b) Educational Literature—*Chronicle of Higher Education* and *Education Week*

(c) Social/Demographic Literature—*American Demographics, Public Opinion*

(d) Technological Literature—*High Technology, Datamation, BYTE, Computer World, Discover,* and *InfoWorld*

(e) Economic Literature—*Business Week, The Economist, Fortune, Forbes, Money, Inc.* and *The Monthly Labor Review*

(f) Political Literature—*New Republic, The National Review, The National Journal* and *Mother Jones*

(g) General Interest Literature—*Vital Speeches of the Day, Across the Board, Naisbitt Trend Letter, Kiplinger Washington Letter, Time, Newsweek, U.S. News and World Report,* and *The Futurist*

In addition to commercial resources, a number of government agencies publish trend data, many times at little or no cost. For example, GAO Reports may be obtained from the U.S. General Accounting Office, Document Handling and Information Services Facility, P. O. Box 6015, Gaithersburg, MD 20877, phone 202 275-6241. NCES reports are available from NCES, Washington, D.C. Periodic Rand reports may be obtained from The Rand Corporation, Publications Department, 1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138.

Morrison, Renfro, and Boucher (1984) identify a number of other information resources, including those used by the ACLI Trend Analysis Program and the ERIC Clearinghouse on Higher Education.

ASSIGNING SCANNERS INFORMATION RESOURCES

Assigning scanners specific materials for regular review and analysis provides a measure of confidence that most "blips" on the radar screen will be spotted. A suggested procedure for assigning information resources is first to ascertain what materials, conferences, and so forth, are regularly read or attended by scanners. The list of materials regularly read by scanners should be compared to the list of important information resources identified in the above activity. If at all possible, scanners should be assigned material they already regularly review. It is likely that there will be material that is not regularly read; in such cases, it is recommended that scanners be asked to volunteer to read those resources. Moreover, the scanning committee chair should institute a procedure to "spot check" how well the information resources are being reviewed. If there are many scanners, it is advisable to build in redundancy by having two or more scanners review the same information resource.

TRAINING SCANNERS

Scanners need orientation and training in scanning and in reporting information via abstracts. Scanners should keep in mind that they are scanning to anticipate social, economic, technological and legislative/regulatory changes in order to facilitate planning and policy formulation; therefore, they should seek signals that indicate departures from expected futures. Specifically, when scanning their assigned materials, they

should ask themselves if the items:

1. represent events, trends, developments, or ideas never before encountered.
2. contradict previous assumptions or beliefs about what seems to be happening.
3. represent new twists to old arguments.
4. can be linked to other abstracts previously written or seen.
5. discuss new patents, inventions, and/or research results.
6. have implications for the long-range program or management of the organization.
7. contain polls or forecasts.

TRAINING ABSTRACTERS

It would be ideal if scanners would also serve as abstractors. However, one or two student assistants may need to be employed for this task. Irrespective of who does the abstracting, all scanners and institutional research staff personnel should be trained to write abstracts.

The lead sentence of an abstract should be a response to this question: "If I had only a few minutes to describe this article to a friend, what would I say?" What is the most important idea or event that indicates change? The response to this question should be followed by a one paragraph explanation. Whenever possible, statistical data should be included. The summary should be limited to no more than one-half page of single-spaced, typewritten copy.

Each abstract should have an implications section responding to the question, "How will the information in this article affect this organization's programs or management?" The author should include a list of those emerging issues suggested by the article, a description of future events occurring as a result of the trend identified by the article, and/or an identification of issue stakeholders if they are not listed in the article.

Speculation about implications is a part of the scanning and abstracting process. Here the abstractor tries to determine an item's potential for affecting other facets of the social environment and/or the organization. There are no "right" answers. Note, however, that some articles may offer no implications that are immediately apparent. The scanning committee, with the benefit of related abstracts from other scanners, may be able to detect implications that a single monitor cannot.

CONDUCTING A SCANNING COMMITTEE MEETING

A scanning committee meeting should be held every two to three months to handle the approximately 70-100 abstracts that would probably come in during that period. Several approaches could be used to prepare for a scanning committee meeting. For example, at the Georgia Center for Continuing Education, the chair segregates abstracts according to subject area (i.e., all those concerning office automation go into one pile, employee compensation go into another, and those difficult to assign, into a miscellaneous pile). Each member of the committee is assigned a particular packet of abstracts to review in detail. All members read the entire selection of abstracts received, but are requested to come to the meeting with a list of trends and potential issues derived from those abstracts in their packet that are new. They are expected to examine how these trends and issues relate to or conflict with other trend areas identified previously (Morrison, Simpson and McGinty, 1987).

An alternative approach is for each member to review all scanning abstracts and come to the meeting prepared to sort them into three categories: "winners," "losers," and "middle-of-the-roaders." Irrespective of the approach used, the meeting itself may last from two to three hours, including a round robin, with each person reporting his/her subject area, and a free-for-all discussion. The end result should be a list and brief description of 15 or so trends, possible events, and emerging issues that appear important to consider in the annual planning exercise.

USING SCANNING NEWSLETTERS

A scanning newsletter can serve to bring important new trends and events to the attention of all members

of the organization and, at the same time, provide recognition for the efforts of volunteer scanners. Certainly the trends and events identified between planning sessions in scanning committee meetings should be included in the newsletter. This newsletter could be a "stand alone" or could be included as an insert in one of the regularly published organizational newsletters. The newsletter should have a logo, be "jazzy," printed on colored paper, and have special boxes labeled, "Wild Speculations." The important point is to avoid anointing speculations, but to recognize that the purpose of the newsletter is to print items that have implications for the organization.

USING ISSUE BRIEFS

After reviewing abstracts at the scanning committee meeting, the committee should be able to identify those 15-25 or so trends, events, and emerging issues that are important to monitor. An in-depth analysis of a particular item may be needed. The CEO may wish to commission an issue brief on the item, to be written by a member of the planning team, an administrative staffer, a staff member in the research and evaluation office, or a faculty member. A recommended format for an issue brief is:

- What is the issue?
- What do we know about it?
- What are the implications?
- What should the organization do?

CONCLUSION

The alternative futures approach to planning is a systematic, intensive, and relatively inexpensive way to focus quickly on strategic areas for which more detailed planning and analysis would be beneficial. Through participating in the process, senior leaders develop a shared understanding of high priority issues and a view of the dynamics of the changing environment of the organization. Participating in the process facilitates team building, focuses attention of decision makers upon the longer-term future, and assures that the strategic options developed from the process have the authority from top management.

To provide a continuous, objective, complete, and detailed analysis of the external environment, the organization should develop a systematic environmental scanning and forecasting system. If important information about the external environment is not available to the planning team, or if this information is not given an opportunity to be articulated, it will not be included in important deliberations. Consequently, the results of the planning process will suffer. However, with an ongoing environmental scanning system, the quality of the information that goes into the environmental scanning notebook will be greatly improved, thereby enhancing the quality of the analysis of the planning team. As importantly, since members of the planning team should be involved as scanners and as members of the scanning committee on a continuous basis, they will increase their orientation to the future and will become more proficient participants in the yearly planning exercise. Incorporating a systematic environmental scanning system process should enable decision makers to anticipate what is happening in the state, region, nation, and world, and, correspondingly, to plan more effectively.

REFERENCES

Aguilar, Francis. (1967). *Scanning the business environment*. New York: Macmillan.

Brown, A. & Weiner, E. (1985). *Supermanging: How to harness change for personal and organizational success*. New York: Mentor.

Callan, P.M. (Ed.). (1986). *New directions for institutional research: Environmental scanning for strategic leadership* (Vol. 52). San Francisco: Jossey-Bass.

Coates, J. F., Inc. (1985, July). *Issues identification and management: The state of art of methods and techniques. Research project 2345-28*. Palo Alto, California: Electric Power Research Institute.

Cope, R. G. (1981). Environmental assessments for strategic planning. In N.L. Poulton (Ed.), *New*

directions for institutional research: Evaluation of management and planning systems (Vol. 31, pp. 5-15). San Francisco: Jossey-Bass.

Cope, R.G. (1987). *Opportunity from strength.* Washington, D.C.: Association for the Study of Higher Education.

Hearn, J. C. & Heydinger, R. B. (1985). Scanning the external environment of a university: Objectives, constraints, and possibilities. *Journal of Higher Education, 56*, 419-445.

Jain, S. C. (1984). Environmental scanning in U.S. corporations. *Long-Range Planning, 17*, 117-128.

Jonsen, R.W. (1986). The environmental context of higher education. In P.M. Callan (Ed.), *New Directions for institutional research: Environmental scanning for strategic leadership* (No. 52, 5-20). San Francisco:Jossey-Bass.

Keller, G. (1983). *Academic strategy: The management revolution in American higher education.* Baltimore: Johns Hopkins.

Morrison, J. L. (1987). Establishing an environmental scanning system to augment college and university planning. *Planning in Higher Education, 15* , 7-22.

Morrison, J. L. (1986). Report of the SCUP environmental scanning network. *News from SCUP*, 6.

Morrison, J. L. (1989). Developing an environmental scanning/forecasting system to augment community college planning: Implications from a seminar. *VCCA Journal, 4*, 34-42.

Morrison, J. L., & Mecca, T. V. (1986). *ED QUEST: Linking environmental scanning to strategic management.* Chapel Hill, NC: Copytron.

Morrison, J.L., Renfro, W.L., & Boucher, W.I. (1984). *Futures research and the strategic planning process: Implications for higher education. ASHE-ERIC Higher Education Research Report No.9.* Washington, D.C.: Association for the Study of Higher Education.

Pflaum, A. M., & Delmont, T. J. (1985, April). *External scanning in public and private organizations: Implications for strategic management in higher education.* Paper presented at the meeting of the Association for Institutional Research, Portland, OR.

Simpson, E.G., McGinty, D. L., & Morrison, J.L. (1987). Environmental scanning at the Georgia Center for Continuing Education. *Continuing Higher Education Review*, Autumn, 1-19.

Thomas, Phillip S. (1980) Environmental scanning: The state of the art. *Long Range Planning*, 13, 20-28.

END

U.S. Dept. of Education

Office of Education
Research and
Improvement (OERI)

ERIC

Date Filmed

March 21,1991